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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/699,652	11/04/2003	Hagop A. Nazarian	M4065.0901/P901	3940

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EXAMINER	
NGUYEN, TAN	
ART UNIT	PAPER NUMBER
2827	

DATE MAILED: 07/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/699,652	NAZARIAN, HAGOP A.	
	Examiner	Art Unit	
	Tan T. Nguyen	2827	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 June 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *See Continuation Sheet* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,4,13-15,17,24,26-27,28,31,40-42,44,49-51* is/are rejected.

7)☒ Claim(s) *5,7,8,22,23,32,34,35,46,47 and 53* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Continuation of Disposition of Claims: Claims pending in the application are 1,4,5,7,8,13-15,17,22-24,26-28,31,32,34,35,40-42,44,46,47,49-51 and 53.

1. The following action is in response to the amendment filed by Applicant on June 22, 2005.

2. The drawings submitted by Applicant on June 2, 2005 have been received.

3. Claims 1, 4, 5, 7, 8, 13-15, 17, 22-24, 26-28, 31, 32, 34, 35, 40-42, 44, 46, 47, 49-51 and 53 are pending.

Claims 2, 3, 6, 9-12, 16, 18-21, 25, 29, 30, 33, 36-39, 43, 45, 48 and 52 have been canceled.

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1, 4, 13-15, 17, 24, 26-27, 28, 31, 40-42, 44, 49-51 are rejected under 35 U.S.C. 102(e) as being anticipated by Hung et al. (U.S. Patent No. 6,757,189).

Regarding claims 1, 17, Hung et al. disclosed in Fig 3 a high density MRAM comprising a two-bit memory cell of a series of MTJ structure, wherein the first MTJ cell [R1] and the second MTJ [R2] are connected with each other through a transistor [30]. The transistor [30] is used for controlling readout signal through a read word line [WL1] at the gate terminal. One terminal of the first MTJ cell [R1] is connected to the first bit line [BL1] and one terminal of the second MTJ cell [R2] is connected to the second bit line [BL2] (column 3, lines 45-55). Applicant admitted in Figure. 1A, page 3, paragraph

[0008] of the specification "a typical prior art variable resistance memory array [10], here discussed as an MRAM array". Accordingly, the MTJ cells [R1], [R2] in the MRAM disclosed by Hung et al. are inherently a variable resistance memory elements.

Regarding claim 4, 31, Hung et al. showed in Figure 10 that for every two-bit memory cell a bit line pair [BL1, BL2], [BL3,BL4] are coupled to the MTJ cells of the memory cell, and the one bit line of each of the bit line pair is coupled to a sense amplifier [unnumbered].

Regarding claims 28, although Hung et al. did not disclose a processor, it is inherent that the MRAM device disclosed by Hung et al. includes a processor to generate the control signals for the device.

Regarding claim 44, Hung et al. disclosed in Fig. 10 a reading operation of the series MTJ structure wherein the transistor [83] is turned on by the read word line [WL1]. A voltage current is provided from the first bit line [BL1], and the second bit line [BL2] is grounded. The sense current flows through the left MTJ [81], the transistor [83] and the right MTJ [82], and the ground terminal. The reading process is performed by comparing the sense current with a reference current generated by a reference generator [100] (column 7, lines 9-17).

Regarding claims 13-15, 24, 26-27, 40-42, 49-51, Applicant disclosed in the Background (pages 1-2, paragraphs [0003-0006] different types of variable resistance memory such as PCRAM, polymer memory and chalcogenide memory.

6. Claims 5, 7-8, 22-23, 32, 34-35, 46-47, 53 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

7. **REMARKS**

The 35 U.S.C. 112 rejection to claims 4,10,31 and 37 have been withdrawn due to the amendment to claims 4 and 31, and the cancellation of claims 10 and 37.

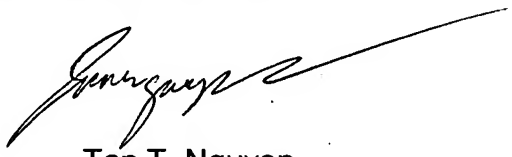
Claims 1, 4, 17, 28, 31, 44 are rejected under 35 U.S.C 102 (e) by U.S. Patent No. 6,757,189 (hung et al.). Applicant has amended claims 1, 17, 28 and 44 to include the limitation of the memory cells comprising variable resistance memory element. As applicant admitted in Figure 1a, page 3, paragraph [0008] a typical prior art variable resistance memory array [10]. Accordingly, the MTJ cells [R1], [R2] in the MRAM device disclosed by Hung et al. are inherently variable resistance memory elements.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tan T. Nguyen whose telephone number is (571) 272-1789. The examiner can normally be reached on Monday to Friday from 07:00 AM to 03:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoai Ho, can be reached at (571) 272-1777. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Tan T. Nguyen
Primary Examiner
Art Unit 2827
July 01, 2005